Remarks

Applicants have received and carefully studied the Official action mailed January 5, 2011 which rejected claims 1-58. To better point out their invention, applicants have amended claims, 1, 3, 9, 10, 12, 20, 23, 28, 31-35, 39, 40-45, 49-53 and 57-58. Further, applicants have cancelled claims 2, 7-8, 17-19, 24-26, 29-30, 36-38, 46-48 and 54-56 without prejudice. Following the claim cancellations, claims 1, 3-6, 9-16, 20-23, 27-28, 31-35, 39-45, 49-53 and 57-58 remain in this application. Applicants respectfully traverse the rejections in view of the amendments to the claims and the following comments.

35 U.S.C. §101 Rejections of Claims 1-11 and 23-34

Independent claims 1 and 23 stand rejected under 35 U.S.C. §101 as reciting an error signal and do not recite a practical application, (e.g., the claims do not give rise to a physical transformation). Claims 2-11 and 24-34 depend from claims 1 and 23, respectively, and stand rejected as depending from a rejected base claim.

Applicants have amended claim 1 so the preamble now recites "*A method for Automatic Frequency Control in a Code Division Multiple Access system.*" Further, applicants have also added an additional step to claim 1 to now recite *controlling gain in an Automatic Frequency Control loop in the Code Division Multiple Access system in accordance with the error signal.* Thus, claim 1 now longer recites simply generating an error signal, but rather a technique for Automatic Frequency Control. As such, amended claim 1 recites a practical application and recites statutory subject matter. Accordingly, applicants request withdrawal of the 35 U.S.C. §101 rejection of claims 1, 3-6, and 9-11.

With respect to claim 23, applicants have made amendments similar to claim 1. For example, the preamble of claim 23 now recites *A method for generating an error signal for an Automatic Frequency Control loop in a CDMA system for Automatic Frequency Control.* Further, applicants' claim 23 also now recites in the body of the claim the step of *controlling gain in the Automatic Frequency Control loop in the Code Division Multiple Access system in accordance with the error signal.* Thus, like claim 1, claim 23 now recites a method which has a practical application, namely Automatic Frequency Control in a Code Division Multiplex Access

system. Given that claim 23 recites a practical application, the claim recites statutory subject matter. Applicants request withdrawal of the 35 U.S.C. §101 rejection of claim 23, and claims 27-28, and 31-34 that depend therefrom.

35 U.S.C. § 112 Rejection of Claims 23, 35, 43 and 51

Claims 23, 35, 43, and 51 stand rejected under 35 U.S.C. § 112, first paragraph, as lacking enablement in the specification. In particular, the examiner contends that applicants' specification does not support the feature of a method and apparatus for generating a loop error signal for a delay-lock code tracking loop in a CDMA system.

Applicants have amended claims 23 and 43 to recite *A method for generating an error signal for an Automatic Frequency Control loop in a CDMA system for Automatic Frequency Control.* In a similar vein, applicants have amended claims 35 and 51 to recite *An apparatus for generating an error signal for an Automatic Frequency Control loop in a CDMA system.* Ample support for such amendments exists in applicants' specification, particularly at page 2, lines 23-25 through page 3, lines 1-17, as well as pages 5-10 and FIG. 2. In view of the amendments, claims 23, 35, 43, and 51 comply with the enablement requirement of 35 U.S.C. § 112, thus warranting withdrawal of this rejection.

35 U.S.C. § 112 Rejection of Claims 24-26, 36-38, 46-48 and 54-56

Claims 24-26, 36-38, 46-48 and 54-56 stand rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the enablement requirement. Applicants have cancelled claims 24-26, 36-38, 46-48 and 54-56, thereby rendering the rejection moot.

35 U.S.C. § 112 Rejection of Claims 8, 12, 20, 30, 43, 40 and 51

Claims 8, 12, 20, 30, 43, 40, and 51stand rejected under 35 U.S.C. § 112, second paragraph, as failing to clearly point out and claim applicants' invention. Applicants will separately address the rejection of claim 8, claims 12, 43 and 51, and claims 30 and 50 hereinafter.

Claim 8 stands rejected under 35 U.S.C. § 112, second paragraph as lacking antecedent basis for the step of "utilizing values of the error signal". Applicants have cancelled claim 8, thereby rendering the rejection of this claim moot.

Claims 12, 43, and 51 stand rejected under 35 U.S.C. § 112, second paragraph because the claims recite "decimating the accumulated sign information." The examiner contends that it is unclear how to decimate the accumulated sign information since such information has a value of either +1 or -1.

The term "decimation", as defined in *Wikipedia,* refers to a technique for reducing the number of samples in a discrete-time signal. Applicant's specification, at page 9, lines 1-14 describes the decimation process as follows:

> According to another embodiment of the present invention, the accumulator and decimator 110, in addition to performing accumulation, also performs decimation. In this case, for every *t* (threshold) input samples, the decimator is reset to zero, and at the same interval the output of the decimator is passed as an error signal to the LPF 112. In this case, as opposed to the previously described one, there are no fixed gains x and y that need to be determined. Moreover, in this case, there are no thresholds +a and –b that need to be applied. As is known, a decimator having a certain input rate will correspondingly have a reduced output rate, with each input symbol or bit being "stretched" or repeated at the output to form a continuous output at the reduced rate. Thus, in this embodiment, the accumulator and decimator 110 performs both accumulation and decimation, in contrast to other embodiments wherein the accumulator and decimator 306 is simply an accumulator that performs accumulation but not decimation.

For the foregoing description, the examiner should appreciate that applicants' accumulator and decimator (110) resets itself every *t* input samples. At that time, the output of the accumulator and decimator becomes zero which serves as the error signal received by the low pass filter. In this way, applicants reduce (i.e. decimate) the accumulated sign information. Therefore, applicants' claims 12, 43, and 51 clearly point out and claim applicants' invention. Accordingly, applicants request withdrawal of the 35 U.S.C. § 112 rejection of these claims.

Claims 30 and 50 stand rejected under 35 U.S.C. § 112, second paragraph, as lacking sufficient basis for the adjusting step. Applicants have cancelled claim 30, thus rendering the 35 U.S.C. § 112 rejection of that claim moot. Applicants have amended claim 50 to depend from claim 49 which recites the adjusting step. Accordingly, applicants request withdrawal of the 35 U.S.C. § 112 rejection of claim 50.

35 U.S.C. § 102(b) Rejection of Claims 1, 5-6, 11, and 17-18

Claims 1, 5-6, 11 and 17-18 stand rejected under 35 U.S.C. § 102(b) as anticipated by US Published Patent Application 2002/0067788 to Roubik Gregorian et al. Applicants respectfully traverse the rejection in view of the amendments to claim 1.

As discussed above, applicants' amended claim 1 now recites "*A method for Automatic Frequency Control in a Code Division Multiple Access system*" and includes the step of *controlling gain in an Automatic Frequency Control loop in the Code Division Multiple Access system in accordance with the error signal.* These features do not appear in the Gregorian et al. published application.

The Gregorian et al. published application concerns a clock recovery circuit which has a transition detector for detecting transitions in an incoming data stream. An accumulator circuit accumulates a count for each transition, providing the results to a comparison circuit which compares the accumulated count to maximum and minimum thresholds, and provides advance or retard outputs when such thresholds are exceeded. A phase circuit adjusts the phase of the recovered clock by advancing or retarding it after a sufficient number of transitions have been detected either in advance of, or behind the recovered clock signal to justify such an adjustment.

The Gregorian et al. published application has absolutely nothing to do with Automatic Frequency Control in a Code Division Multiplex Access system. Indeed, the Gregorian et al published application provides no disclosure of an Automatic Frequency Control loop, let alone, the step of adjusting the gain in such a loop. For these reasons, the Gregorian et al. published application does not disclose or suggest all of the features of applicants' claim 1 and claims 5-6 and 11 that depend therefrom. Therefore, applicants request withdrawal of the 35 U.S.C. § 102(b) rejection of these claims.

Applicants have cancelled claims 17-19, thereby rendering the 35 U.S.C. § 102(b) rejection of claims 17 and 18 moot.

35 U.S.C. § 103(a) Rejection of Claim 2

Claim 2 stands rejected under 35 U.S.C. § 103(a) as obvious over the Gregorian et al. published application, in view of US Patent 6,741,665 in the name of Thomas J. Kenney et al. (hereinafter, the Kenney et al. patent) Applicants have cancelled claim 2, thereby rendering the rejection moot.

35 U.S.C. § 103(a) Rejection of Claim 3-4

Claims 3-4 stand rejected under 35 U.S.C. § 103(a) as obvious over the Gregorian et al. published application, in view of the Kenney et al. patent, further in view of US Patent 6,363,102 in the name of Fuyun Ling et al (hereinafter, the Ling et al. patent). In rejecting applicants' claims, the examiner contends that it would have been obvious to modify the Gregorian et al. published application to add the Automatic Frequency Control loop of Kenney et al. and the multiplying and sign value obtaining steps of Ling et al. Applicants respectfully traverse the rejections.

Applicants have discussed the Gregorian et al. published application above. For the sake of brevity, applicants will not repeat that discussion here. For purposes of the instant rejection, applicants reiterate that the Gregorian et al. published application has absolutely nothing to do with Automatic Frequency Control, let alone teach applicants' step of adjusting the gain in an Automatic Frequency Control loop, as recited in claim 1 from which claims 3 and 4 depend.

The Kenny et al patent describes an Automatic Frequency Control loop that operates by generating a loop error signal based on the difference between a received signal and a local oscillator signal for each rake of a rake receiver. A summing block combines the error signals from all of the rakes of the receiver. A sign detection block establishes the sign of the combined error signal, thus yielding a bi-phase error signal (+1 or -1). Following filtering and integration, the bi-phase error signal serves to control the local frequency oscillator signal.

Within the framework of 35 U.S.C. 103, the examiner cannot pick and choose from any one reference only so much as it will support a given position to the to the exclusion of other parts necessary for a full appreciation of what the reference fairly suggests to one of ordinary skill in the art. *Application of Wesslau*, 353 F. 2d 238, 147 U.S.P.Q. 391 (CCPA 1965). In this regard, the examiner's proposed combination of Gregorian et al. and Kenney violates the

proscription set forth in MPEP 2143.01 (VI) that a proposed modification cannot change the principle of operation of a reference.

The examiner's attempt to add the Automatic Frequency Control loop of Kenney et al. to Gregorian et al. fails to take account of the complete failure of any teaching or suggestion of any need in Gregorian et al. for adding Automatic Frequency Control loop in the first place since Gregorian et al. has no need for frequency regulation. Thus, applicants question the propriety of the combination since there is nothing in Gregorian or elsewhere that would motivate a skilled artisan to make the combination but for the use of impermissible hindsight.

Secondly, the Automatic Frequency Control loop of Kenney et al. does not have any need to accumulate the sign information, nor compare accumulated sign information to predetermined thresholds, as allegedly taught by Gregorian et al. Thus to combine Gregorian et al. with Kenny et al. would lead to a change in the operation of the Kenney et al, Automatic Frequency Control loop. Indeed, in this regard, applicants direct the examiner's attention to the disclosure at Col. 4, lines 18-29 of Kenney et al. which provides:

> The pilot channel-related frequency error outputs of the active fingers 12, 14, 16 are applied to the combiner 9, which then supplies the combined finger error signals to the remaining components, i.e., to the sign detector 10, second loop filter 6B (or the first and second loop filters 6A and 6B for the embodiment of FIG. 3), the integrator 7, the DAC 8 and the VCO 3. The output of the VCO 3 is the mixing frequency signal that is applied to the mixer 2, thereby closing the loop.
>
> A significant advantage of this approach is that by adding the rake finger signals prior to the sign detection block 10 there is provided a Maximal Ratio Combining of the rake finger signals. This is true because the pilot channel gain is weighted by signal strength, and the strongest pilot channel signal will therefore dominate the MRC output of the combiner 9. Thus, the output of the sign detection block 10 represents the sign of the result of the MRC of the pilot channel signals from various rake fingers 12, 14, 16.

Applicants question whether add the steps of (a) accumulating the sign information and (b) comparing the accumulated sign information to a threshold, as taught by Gregorian et al. for clock recovery, to Kenney et al will still obtain the advantage described in Kenney et al. which does not perform these steps. Unless the examiner can demonstrate that adding the steps of accumulating the sign information and comparing the accumulated sign information to a

threshold to Kenney et al would not change its operation, then the examiner's combination of Kenney et al. and Gregorian et al. fails under MPEP 2143.01 (VI).

For the reasons given above, the combination of Kenney et al. and Gregorian et al. fails. Adding the teachings of Ling et al. does nothing to remedy the deficiency of the failed combination of Kenney et al. and Gregorian et al since Ling et al. does not teach or suggest the steps of accumulating and comparing the sign information. Thus, the examiner has failed to establish a *prima facie* case of obvious under 35 U.S.C. § 103(a), warranting withdrawal of the rejection of claims 3 and 4.

35 U.S.C. § 103(a) Rejection of Claims 7-9 and 19

Claims 7-9 and 19 stand rejected under 35 U.S.C. § 103(a) as obvious over the Gregorian et al. published application, in view of US patent 5,740,205 to Kevin L. Baum et al. (hereinafter, the Baum et al. patent). The examiner contends that it would have been obvious to modify the clock recovery circuit of Gregorian et al. to include the Automatic Frequency Control loop of Baum et al. to make use of the positive and negative constant control signals. Applicants respectfully traverse the rejection.

Applicants have discussed the Gregorian et al. published application above and for the sake of brevity, applicants will not repeat that discussion here. For purposes of the instant rejection, applicants reiterate that the Gregorian et al. published application has absolutely nothing to do with Automatic Frequency Control, let alone teach applicants' step of adjusting the gain in an Automatic Frequency Control loop, as recited in claim 1 from which claims 7-9.

Claim 19 depends from claim 17 and incorporates by reference all of the features thereof. Thus, claim 19 includes incorporates the accumulator, comparator, and error signal generator, recited in claim 17.

The Baum et al. frequency control loop makes use of a differential phase unit and a coherent phase unit. The differential phase unit provides a differential phase error signal for correcting when the frequency offset is high, whereas the coherent phase unit provides a coherent phase error signal for correcting when the frequency offset is low.

The examiner's attempt to add the Automatic Frequency Control loop of Baum et al. to Gregorian et al. fails to take account of the complete failure of any teaching or suggestion of any

need in Gregorian et al. for adding Automatic Frequency Control loop in the first place since Gregorian et al. has no need for frequency regulation. Thus, applicants question the propriety of the combination since there is nothing in Gregorian or elsewhere that would motivate a skilled artisan to make the combination but for the use of impermissible hindsight.

Secondly, the Automatic Frequency Control loop of Baum et al. does not have any need to accumulate the sign information, nor compare accumulated sign information to predetermined thresholds, as allegedly taught by Gregorian et al. Thus to combine Gregorian et al. with Kenny et al. would lead to a change in the operation of the Baum et al, Automatic Frequency Control loop. Indeed, in this regard, applicants direct the examiner's attention to the disclosure at Col. 2, lines 24-29 of Baum et al. which states:

> An advantage of the present invention over prior art is that frequency offset tracking performance is maximized because of the use of the novel dual selection scheme of the present invention. Differential phase error feedback is used during the acquisition mode because the differential phase unit does not require any acquisition time in order to produce a valid differential phase error output. Moreover, in applications where the received signal is a digitally modulated information signal such as QPSK, the differential phase unit does not require knowledge of the optimal symbol sampling phase.

Adding the feature of accumulating sign information, as taught by Gregorian et al. to the frequency control loop of Baum et al. likely would lead to an increase in the time required to produce an error signal, clearly the opposite of what Baum et al. teach. Therefore, the examiner's combination of Gregorian et al. and Baum et al. fails under MPEP 2143.01 (VI). For this reason, applicants request withdrawal of the 35 U.S.C. § 103(a) rejection of claims 7-9 and 19.

35 U.S.C. § 103(a) Rejection of Claim 10

Claim 10 stands rejected under 35 U.S.C. § 103(a) as obvious over the Gregorian et al. published application, in view of US Patent 6,229,991 in the name of Alexander W. Hietala et al. (hereinafter, the Hietala et al patent.). In rejecting claim 10, the examiner suggests it would have been obvious to combine the teachings of Gregorian with the Automatic Frequency Control loop

of Heitala to teach the use of a predetermined threshold. Applicants respectfully traverse this rejection.

Applicants have discussed the Gregorian et al. published application above and for the sake of brevity, applicants will not repeat that discussion here. For purposes of the instant rejection, applicants reiterate that the Gregorian et al. published application has absolutely nothing to do with Automatic Frequency Control, let alone teach applicants' step of adjusting the gain in an Automatic Frequency Control loop, as recited in claim 1 from which claim 10 depends.

The Hietala et al. frequency control loop makes use of a range extension which is initially set high for signal acquisition. After determining the frequency error, the range reception is reduced for normal reception.

The examiner's attempt to add the Automatic Frequency Control loop of Hietala et al. to Gregorian et al. fails to take account of the complete failure of any teaching or suggestion of any need in Gregorian et al. for adding Automatic Frequency Control loop in the first place since Gregorian et al. has no need for frequency regulation. Thus, applicants question the propriety of the combination since there is nothing in Gregorian or elsewhere that would motivate a skilled artisan to make the combination but for the use of impermissible hindsight.

Secondly, the Automatic Frequency Control loop of Hietala et al. does not have any need to accumulate the sign information, nor compare accumulated sign information to predetermined thresholds, as allegedly taught by Gregorian et al. Thus to combine Gregorian et al. with Hietala et al. would lead to a change in the operation of the Hietala et al, Automatic Frequency Control loop. Therefore, the examiner's combination of Gregorian et al. and Hietala et al. fails under MPEP 2143.01 (VI). For this reason, applicants request withdrawal of the 35 U.S.C. § 103(a) rejection of claim 10.

35 U.S.C. § 103(a) Rejection of Claims 12, 15-16, and 20-22

Claims 12, 15-16, and 20-22 stand rejected under 35 U.S.C. § 103(a) as obvious over Kenney et al. in view of US Patent 6,304,620 to Antoine Rouphael (hereinafter, the Rouphael patent). The examiner contends that it would have been obvious to modify the Automatic

Frequency Control system of Kenney et al. to include the feature of decimating the accumulated sign information. Applicants respectfully traverse the rejection for the reasons given below.

Applicants' independent claims 12 and 20 both recite the step of accumulating sign information relating to phase differences in received pilot signals. Notwithstanding the examiner's contention to the contrary, the sign detector (10) of Kenney et al. does not accumulate sign information. Indeed, as discussed at Col. 4, lines 18-29, the sign detector (10) of Kenney et al. detects the sign of the output signal of the combiner (9) which is dominated by the strongest pilot channel signal. If Kenney were to accumulate sign information, then strongest pilot signal at any given time would not dominate, only the last pilot signal within the accumulation interval would dominate. Thus, Kenny does not accumulate sign information, and in fact, the patent never mentions the term "accumulate" at all.

The Rouphael patent concerns a Automatic Frequency Control loop which uses the cross product of $sin\,(\omega\text{-}\acute{\omega})$ and $cos(\omega\text{-}\acute{\omega})$ where ω is the received frequency and $\acute{\omega}$ is the frequency of the local oscillator. A sign slicer retains the sign of the most significant bit of the cosine component whereas to sign gates determine the signs of the most significant bit of the cosine component and the sign of the sine component. The sum of the output signals of the sign gates provides an estimate of the frequency error.

Like the Kenny et al. patent, the Rouphael patent says nothing about accumulating the sign information. Therefore, the combination of Kenney et al. and Rouphael does not teach all of the features of claims 12 and 20, and dependent claims 15-16 and 21-22, respectively. For this reason, applicants request withdrawal of the 35 U.S.C. § 103(a) rejection of claims 12, 15-16 and 20-22.

35 U.S.C. § 103(a) Rejection of Claims 13 and 14

Claims 13 and 14 stand rejected under 35 U.S.C. § 103(a) as obvious over Kenney et al., in view of Rouphael further in view of Ling et al. The examiner contends that it would have been obvious to modify the combination of Kenney et al. and Rouphael et al. to include the pilot signal dispreading taught by Ling et al. Applicants respectfully traverse this rejection.

Claims 14 and 14 depend from claim 12 and incorporate by reference all of the features thereof including the step of accumulating sign information relating to phase differences in

received pilot signals. As discussed above, the combination of Kenney et al. and Rouphael does not teach all of the features of claim 12, because the combination does not teach the accumulating of sign information. The Ling et al. patent also fails to teach the accumulating of sign information. Therefore, the combination of Kenney et al., Rouphael and Ling et al. would not teach all of the features of claim 13 which depends from claim 12. Therefore, applicants request withdrawal of the 35 U.S.C. § 103(a) rejection of claim 13.

35 U.S.C. § 103(a) Rejection of Claims 23, 27-31, 35, 39 and 40

Claims 23, 27-31, 35, 39 and 40 stand rejected under 35 U.S.C. § 103(a) as obvious over US patent 7,715,463 to Bin Li (hereinafter, the Li patent). The examiner contends that Li teaches a loop error signal for a delay lock code tracking system that includes accumulation of sign information. Applicants respectfully traverse the rejection.

As discussed above, applicants have amended claims 23 and 35 to delete recitation of a delay lock code tracking loop. Rather, amended claim 23 now recites *A method for generating an error signal for an Automatic Frequency Control loop in a CDMA system for Automatic Frequency Control.* Applicants' amended claim 35 now recites *An apparatus for generating an error signal for an Automatic Frequency Control loop in a CDMA system.* The examiner should appreciate that Automatic Frequency Control constitutes a different process than code tracking. Indeed, the Li patent says nothing about Automatic Frequency Control. For this reason, Li would not render obvious claims 23, 27-31, 35, 39, and 40. Therefore, applicants request withdrawal of the 35 U.S.C. § 103(a) rejection of these claims.

35 U.S.C. § 103(a) Rejection of Claim 32

Claim 32 stands rejected under 35 U.S.C. § 103(a) as obvious over the Li patent in view of US Patent 7,010,020 to Aykut Bultan et al. (hereinafter, the Bultan et al. patent) Applicants traverse this rejection.

Claim 32 depends from claim 23, which as discussed above, now recites *A method for generating an error signal for an Automatic Frequency Control loop in a CDMA system for Automatic Frequency Control.* In particular, claim 23 further recites the step of *controlling gain*

in the Automatic Frequency Control loop in the Code Division Multiple Access system in accordance with the error signal. As discussed above, the Li patent concerns itself with a delay code tracking loop, not an Automatic Frequency Control loop.

Like the Li patent, the Bultan et al. patent also concerns a delay code tracking loop and says nothing about Automatic Frequency Control. Therefore, the combination of Li and Bultan et al. would not disclose all of the features of claim 23 and claim 32 which depends therefrom and incorporates by reference all of the features thereof. Applicants request withdrawal of the 35 U.S.C. § 103(a) rejection of claim 32.

35 U.S.C. § 103(a) Rejection of Claims 33-34 and 41-42

Claims 33-34 and 41-42 stand rejected under 35 U.S.C. § 103(a) as obvious over the Li patent in view of US Patent 7,724,817 to Philip J. Pietraski et al. (hereinafter, the Pietraski et al. patent.) Applicants traverse this rejection.

Claims 33-34 depend from claim 23 whereas claims 41-42 depend from claim 35. Thus claims 33-34 incorporate by reference all of the features of claim 23, which as now amended, recites *A method for generating an error signal for an Automatic Frequency Control loop in a CDMA system for Automatic Frequency Control.* In particular, claim 23 further recites the step of *controlling gain in the Automatic Frequency Control loop in the Code Division Multiple Access system in accordance with the error signal.* Claim 35, as now amended, recites *An apparatus for generating an error signal for an Automatic Frequency Control loop in a CDMA system.*

The Li patent has nothing to do with Automatic Frequency Control. The Pietraski et al. patent concerns an automatic equalizer, and like the Li patent, has nothing to do with Automatic Frequency Control. Therefore, the combination of Li and Petraski et al. would not disclose or suggest all of the elements of applicants' claims 23 and 35, and thus would not render obvious claims 33-34 and 41-42 which depend therefrom, respectively. Applicants request withdrawal of the 35 U.S.C. § 103(a) rejection of claims 33-34 and 41-42.

35 U.S.C. § 103(a) Rejection of Claims 43-44 and 51-52

Claims 43-44 and 51-52 stand rejected under 35 U.S.C. § 103(a) as obvious over the Li patent in view of US Patent 6,370,133 to Inchul Kang et al. (hereinafter, the Kang et al. patent.) Applicants traverse this rejection.

Claim 43 recites *A method for generating a error signal for an Automatic Frequency Control loop in a CDMA system to achieve Automatic Frequency Control.* In particular, claim 43 recites the step of *controlling gain in the Automatic Frequency Control loop in the Code Division Multiple Access system in accordance with the error signal.* Claim 44 depends from claim 43 and incorporates by reference all of the features thereof. Claim 51 recites *An apparatus for generating an error signal for an Automatic Frequency Control loop in a CDMA system.* Claim 52 depends from claim 51 and incorporates by reference all of the features thereof.

The Li patent has nothing to do with Automatic Frequency Control. The Kang et al. patent concerns a CDMA receiver which uses digital noise cancellation circuitry to remove noise from the receiver. Like the Li patent, Kang et al. has nothing to do with Automatic Frequency Control. Therefore, the combination of Li and Kang et al. would not disclose or suggest all of the elements of applicants' claims 41 and 51, and thus would not render obvious these claims or claims 42 and 52 which depend therefrom, respectively. Applicants request withdrawal of the 35 U.S.C. § 103(a) rejection of claims 41-42 and 51-52.

35 U.S.C. § 103(a) Rejection of Claims 45 and 53

Claims 45 and 53 stand rejected under 35 U.S.C. § 103(a) as obvious over Li in view of Kang et al., further in view of Rouphael. Applicants respectfully traverse this rejection.

Claims 45 and 53 depend from claims 43 and 51, respectively, and incorporate by reference all of the features of their independent claims. As discussed above, claims 43 and 51 concern Automatic Frequency Control in a CDMA receiver, which is not disclosed or suggested in either of the Li or Kang et al. patents. While applicants submit that the Rouphael patent concerns an Automatic Frequency Control loop, the Rouphael patent does not teach the features of accumulating sign information, as recited in claim 43 and incorporated by reference in claim 45. Likewise, the Rouphael patent does not teach an accumulator for accumulating sign information as recited in claim 51 and incorporated by reference in claim 53.

Given that the combination of Li, Kang et al. and Rouphael do not teach all of the features of claims 45 and 53, these claims patentably distinguish over the art of record. Applicants request withdrawal of the 35 U.S.C. § 103(a) rejection of these claims.

35 U.S.C. § 103(a) Rejection of Claims 49-50 and 57-58

Claims 49-50 and 57-58 stand rejected under 35 U.S.C. § 103(a) as obvious over Li in view of Kang et al. further in view of Pietraski et al. Applicants traverse this rejection.

Claims 49-50 depend from claim 43 and incorporate by reference all of the features thereof. Claims 57-58 depend from claim 51 and incorporate by reference all of the features thereof. As discussed above, claims 43 and 51 recite a method and apparatus, respectively, for generating a loop error signal in an Automatic Frequency Control loop in a CDMA receiver. The Li, Kang et al. and Pietraski et al. patents have nothing to do with Automatic Frequency Control, and thus the combination of references would not teach the features of claims 43 and 51, or the features of dependent claims 49-50 and 57-58. Therefore, claims 49-50 and 57-58 patentably distinguish over the art of record and applicants request withdrawal of the 35 U.S.C. § 103(a) rejection of these claims.

Conclusion

In view of the foregoing, applicants solicit entry of this amendment and allowance of the claims. If the Examiner cannot take such action, the Examiner should contact the applicant's attorney at (609) 734-6820 to arrange a mutually convenient date and time for a telephonic interview.

No fees are believed due with regard to this Amendment. Please charge any fee or credit any overpayment to Deposit Account No. **07-0832.**

Respectfully submitted,
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